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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,939	06/17/2005	Marc De Vogelaere	2002P06474WOU'S	6843

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SIEMENS CORPORATION  
INTELLECTUAL PROPERTY DEPARTMENT  
170 WOOD AVENUE SOUTH  
ISELIN, NJ 08830

EXAMINER

LEADER, WILLIAM T

ART UNIT

PAPER NUMBER

1795

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/539,939

**Applicant(s)**

DE VOGELAERE ET AL.

**Examiner**

WILLIAM T. LEADER

**Art Unit**

1795

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 19-35, 38 and 39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-35, 38 and 39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/S508)
- Paper No(s)/Mail Date 10/17/2008
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Receipt of the papers filed on November 30, 2007, is acknowledged. Claims 36 and 37 have been canceled. 19-35, 38 and 39 are pending.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. The amendments to the claims have overcome the rejection of claim 19 under 35 U.S.C. 112, second paragraph. The amendments to claims 19 and 20 along with applicant's Remarks are also deemed to have overcome the rejection under 35 U.S.C. 112, first paragraph. Claim 20 is written as being dependent on claim 19. A dependent claim must further limit the claim from which it depends. See 37 CFR 1.75(c). Claim 20 recites that the substrate or layer of claim 19 is electrically connected through an electrolyte to an electrode. As acknowledged by applicant at page 5 of the Remarks, anyone skilled in the art will understand that a complete circuit is necessary in order to conduct current to effect the deposition. In an electrolytic deposition process, an electrolyte and electrode in combination with the base on which deposition occurs complete the circuit. However, claim 20 additionally recites that the current provided between the substrate and the electrode is variable. The recitation that the current is variable is considered to constitute a limitation which further limits claim 19.

***Claim Rejections - 35 USC § 112***

4. Claims 20 and 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. As noted above, claim 20 has been amended to recite that a variable current is provided between the substrate and the electrode (lines 3-4). However, lines 1-2 of claim 20 recite that the substrate *or* the layer is electrically connected through an electrolyte. It is not clear if claim 20 requires a variable current between a layer and the electrode if it is a material separation at a surface of a layer rather than a material separation at a surface of a substrate that is being filled. It appears that “or the layer” should be inserted after “the substrate” at the end of line 3.

6. Claim 27 recites that the further material includes material of a type similar to the material of the substrate or the layer. The scope of this limitation is unclear. The specification indicates at page 3, line 10 that the substrate or layer can be a nickel-base or cobalt-base superalloy. However, the specification does not appear to give any guidance as to how it is determined what types of material are similar. For the purposes of examination, since superalloys are metallic, a similar type of material is considered to be a metal.

***Claim Rejections - 35 USC § 103***

7. Claims 19, 24, 25, 28 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boucard et al (WO 03/006710) in view of DE 41 11 174 for the reasons of record and in view of the comments below.

8. As indicated in the previous office action, the Boucard et al publication WO 03/006710 is in the French language and US 7,008,522 is used as an English language equivalent. The Boucard patent is directed to repairing damaged parts. See the abstract. Material is filled into the area with damage by electrolytic deposition (separation). See column 6, lines 52-54.

9. As explained in the previous office action, applicant's process in instant claim 19 differs from that of Boucard by reciting the use of an eddy-current probe. German patent publication '174 is directed to a method of increasing current density during electrocoating of a workpiece. As shown in the figure, device 3, which may be considered to be an eddy-current probe, is provided in the electrolyte in the region of the workpiece being coated. An AC current is applied to device 3 which causes the workpiece to vibrate. This is the same effect caused by applicant's probe. Note page 4, lines 4-10 of the specification which indicate that the substrate is mechanically excited by the probe, i.e. the probe generates oscillations in the substrate. Boucard discloses that an additional effect is that hydrogen bubbles are removed from the workpiece. See the English language abstract.

10. The prior art of record is indicative of the level of skill of one of ordinary skill in the art. It would have been obvious at the time the invention was made to have utilized a probe of the type disclosed by German publication '174 in the process of Boucard because current density would have been increased and bubbles would have been removed.

11. With respect to claim 24, German publication '174 discloses that the AC current is applied to the probe at variable frequencies. See the English abstract. With respect to claim 25, it would have been obvious to have chosen a frequency to cause deposition in the defect being filled. With respect to claim 28, the zone to be repaired is scoured to remove the damaged portions of the underlayer (column 3, lines 47-50). Removing material would widen the opening. With respect to claim 33, Boucard discloses repairing a MCrAlY article where M is nickel or cobalt (column 1, lines 30-31). The underlayer may be refilled with MCrAlY (column 6, lines 45-51).

12. Claim 20-22, 26, 27 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boucard et al (WO 03/006710) in view of DE 41 11 174 as applied to claims 19, 24, 25, 28 and 33 above, and further in view of Takeuchi et al (6,024,861) and Lashmore et al (5,158,653).

13. Claim 20 differs from Boucard by reciting electrical connection through an electrolyte to an electrode. The Takeuchi et al patent is directed to a method for treating a workpiece with a damaged portion 12 (a material separation) in a surface coating 4. See figures 1 and 4. The apparatus includes a power source 9 connected to the workpiece to be treated 5 and a counter electrode 6 immersed in electrolyte 3.

14. Claim 20 as amended also differs from Boucard by reciting provision of a variable current. The Lashmore et al patent is directed to the deposition of a graded alloy coating which includes a plurality of layers as shown in figures 1-4. As shown in figure 5, pulse current is applied in which a base current is superimposed on the current pulses and interpulse periods. This is a variable current as recited in claim 20.

15. It would have been obvious at the time the invention was made to have provided a power source and a counter-electrode in the electrolytic deposition process of Boucard as shown by Takeuchi et al because these elements are conventional and are necessary for electrolytic treatment be performed, and to have utilized a varying pulsed current as taught by Lashmore because a graded deposit with improved material properties would have been formed.

16. With respect to claim 21, as noted above, Lashmore discloses the use of a pulsed current. With respect to claim 22, Lashmore teaches pulsing from one deposition parameter at which primarily a first metal is deposited to a second

deposition parameter at which primarily only a second metal is deposited. See column 3, line 65 to column 4, line 10. With respect to claims 26 and 27, as noted above Boucard discloses repairing a MCrAlY article where M is nickel or cobalt (column 1, lines 30- 31). The underlayer may be refilled with MCrAlY (column 6, lines 45-51). With respect to claim 35, figure 5 of Lashmore shows that pulse current is applied in which a base current is superimposed on the current pulses and interpulse periods.

17. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boucard et al (WO 03/006710) in view of DE 41 11 174 and further in view of Takeuchi et al (6,024,861) and Lashmore et al (5,158,653) as applied to claims 20-22, 26, 27 and 35 above, and additionally in view of GB 1521130.

18. As indicated in the previous office action, the abstract of the '130 publication discloses the use of a piezoelectric transducer to provide ultrasonic radiation to an electroplating bath. The transducer is considered to be an ultrasonic probe as recited in instant claim 23. It would have been obvious at the time the invention was made to have utilized an ultrasonic transducer in the process of Boucard et al as taught by GB '130 because agitation of the electroplating bath would have been provided and electrolyte constituents more evenly distributed in the bath.



19. Claims 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boucard et al (WO 03/006710) in view of DE 41 11 174 as applied to claims 19, 24, 25, 28 and 33 above, and further in view of de Hek (4,436,591).

20. The de Hek patent is directed to the electrolytic deposition of a metal onto a workpiece. The waveforms of different types of applied electric current are shown in figures 6a-6d. Figure 6b shows current with both positive and negative pulses as recited in instant claim 29. Figure 6d shows current with a repeated sequence of two different blocks. This current is considered to meet the limitation of instant claims 30-32. It would have been obvious at the time the invention was made to have utilized pulsed current as shown by de Hek in the process of Boucard because it results in efficient deposition of metal on a substrate.

21. Claims 34, 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boucard et al (WO 03/006710) in view of DE 41 11 174 and de Hek (4,436,591) as applied to claims 29-32 above, and further in view of Lashmore et al (5,158,653).

22. With respect to claim 34, Lashmore produces a gradient in the material composition. See the abstract. It would have been obvious to have varied the pulse parameters as disclosed by Lashmore et al to have produced a graded material because material properties would have been improved. With respect to claim 38,

Lashmore et al discloses varying the duration and magnitude of the pulses. See figure 5. With respect to claim 39, figure 5 of Lashmore shows that pulse current is applied in which a base current is superimposed on the current pulses and interpulse periods.

### ***Response to Arguments***

23. At page 5 of the Remarks, applicant argues that the Bouchard reference is not prior art and refers to MPEP 2135 at page 2100-91. This section of the MPEP is directed to rejections under 35 U. S.C. 102(e). The Bouchard reference (WO 03/006710) was published on January 23, 2003. The international application (PCT/DE03/03954) of which the present application is a national stage entry was filed on December 1, 2003. See the copy of the international application published as WO 2004/057062 A2 and submitted by applicant. The publication date of the Bouchard reference is before the filing date of the international application. The Bouchard reference qualifies as prior art under 35 U.S.C. 102(a) and is properly applied against the instant claims.

24. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **WILLIAM T. LEADER** whose telephone number is (571)272-1245. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Harry D Wilkins, III/  
Primary Examiner, Art Unit  
1795

/William Leader/  
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February 28, 2008